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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/437,370	11/10/99	CCHIKAZAWA	REA 89-936

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MM91/0213

EXAMINER
CHANG, A

ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 02/13/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/437,370

Applicant(s)

CCHIKAZAWA, YOSHIHARU

Examiner

Audrey Y. Chang

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2000.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

DETAILED ACTION

Remark

1. This Office Action is in response to applicant's amendment filed on November 17, 2000 which has been entered as paper number 3.
2. By this amendment, the applicant has amended claims 1, 3, 9 and 14. Claims 1-16 remain pending in this application.
3. The objection to the abstract set forth in the previous Office Action dated July 13, 2000 still holds. The applicant is respectfully reminded that the phrase "the present invention" recited in the newly submitted abstract still is not a precise term.
4. The rejections to claims 1-16 under 35 USC 112, second paragraph, set forth in the previous Office Action dated July 13, 2000 still holds.

Response to Amendment

5. The amendment filed on November 17, 2000 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material, which is not supported by the original disclosure, is as follows: claim 3 has been amended to include the feature of having the mirror means provides parallel beams. The specification as shown in Figure 1 discloses that the light beams "provided by" the mirror means (42) are clearly not parallel beams.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

Art Unit: 2872

pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claim 3 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The reason for rejection base on the added new matter is set forth in the previous paragraph.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-13 and 14-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The reasons for rejection set forth in the previous Office Action dated July 13, 2000 still holds, except for claim 9. The recitations of claims 1 and 14 still fail to give essential structural relationship between the elements in the display device such as between the light source and the image reproducing elements. In particularly, in claim 1, the display device would not be able to provide stereoscopic display if there is no synchronization established between alternatively displaying the right-eye and left-eye images on the image means and the activation of the light source for illuminating light to the right-eye and the left-eye. For claim 14, it appears that the recited "light source" and the recited "image reproducing element" are independent from each other and appears to be isolated elements in the display device which is not clear how do they or if they operate together. Furthermore, the display device will not be able to provide stereoscopic display if the synchronization between the changing positions of the mirror and the alternatively displaying left-eye and right-eye image on the image reproducing element is not established.

Art Unit: 2872

Claim 1 has been amended to include the phrase “a light source means including a light source and an other light source” and the phrase “for activating a source emitting light for the right (or left) eye” which appear to be confusing and indefinite and makes the scope of the claim unclear, since it is not clear how do these “a source” relate to the “a light source and an other light source”? It is not clear how many light sources are actually in the display device and which ones are responsible for image reproduction function.

Claims 2-13 and 15-16 inherit the rejections from their respective base claims.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Woodgate et al (PN. 6,014,164) in view of the patent issued to Eichenlaub (PN. 5,311,220).

Woodgate et al teaches an image display device for displaying stereoscopic images wherein the display device comprises a first and second light source arrays (101a and 101b) for generating light beams to an observer's right and left eyes via a mirror means, which includes mirrors (123 and 124). The light beams reflected from the mirror means are directed to spatial light modulators (127 and 128), which serve as the transmissive image reproducing element, for respectively directing and providing left-eye image and right-eye image, displayed on the spatial light modulators respectively, to the left eye and right eye of the observer, (please see Figure 21 and columns 9-10). This reference has met all the limitations of the claims with the exception that it does not teach explicitly that the right-eye and left-eye images are displayed on the image reproducing element in an alternative fashion. However, it is rather a well known

Art Unit: 2872

practice in the art to use alternative displaying mode of stereo pair images on a single display means to provide stereoscopic display. Such feature is demonstrated by the teachings of Eichenlaub et al in an autostereoscopic display device wherein the left-eye image and right-eye image are displayed on a transmissive light valve display (2) in an alternative fashion and in synchronization with alternatively turning on and off of the light sources for left eye and for right eye to illuminate the light valve, (please see Figures 1-2). It would then have been obvious to one having ordinary skill in the art to apply the teachings of Eichenlaub et al to modify the image reproducing element of Woodgate et al to use an alternative displaying mode on a single display device for the benefit of reducing the size and cost of the display device.

Woodgate et al in a different embodiment teaches that the mirror means may include two curved mirrors (140 and 141 in Figure 23) where the curved mirror is of a convergent type. Although the Woodgate et al reference does not disclose explicitly that the curved mirrors are either of a cylindrical mirror type or ellipsoidal paraboloid mirror type however since the specification fail to teach the criticality of having either one of the mirror types would overcome any problems of prior art they have therefore been considered as obvious variations to one skilled in the art as obvious matter of design choices.

With regard to claims 4 and 5, Woodgate et al teaches that the light beams reflected from the mirror means are passing through a Fresnel lens (125 and 126 as in Figure 21) for properly directing and forming the images of the light generated from the light source arrays to the left and right eyes of the observer respectively. Although this reference does not teach that the mirror means is a Fresnel mirror however it would have been obvious to one having ordinary skill in the art to combine the mirror and the Fresnel lens to form a Fresnel mirror to achieve the same function as disclosed by Woodgate et al for the benefit of reducing the size of the display device. The feature concerning the elongated strips form of the mirror means as disclosed in claim 8 is inherently met by the Fresnel lens or mirror arrangement.

Art Unit: 2872

The features concerning the orientation and shapes of the spatial light modulators and the light arrays are considered as obvious modifications to one skilled in the art since it merely involves rearranging elements in the device. With regard to claim 12, Woodgate et al teaches the spatial light modulator may be a liquid crystal display device, (please see column 3, lines 65-68).

12. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Tandler et al.

The reasons for rejection are set forth in the previous Office Action dated July 13, 2000.

Response to Arguments

13. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

14. Applicant's arguments filed on November 17, 2000 have been fully considered but they are not persuasive.

In response to applicant's argument, which states that the DMD (movable mirror array) of the cited Tandler et al reference has the function to focus rays from light source upon the observer. The examiner wishes to respectfully point out to the applicant that this is the same function of the mirror means recited in claim 14 of the instant application. The examiner also wishes to point out to the applicant respectfully that claim 14 fails to disclose that the image reproducing means is different from the mirror means, since the claim fails to give any reference between the light directing from the mirror means to the image reproducing means. The rejection to claims 14-16 base on the teachings of Tandler et al therefore is proper.

Art Unit: 2872

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

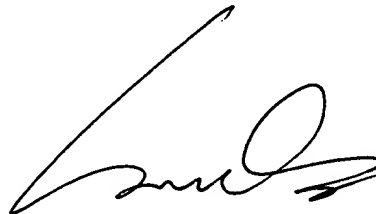
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1637. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

A. Chang
February 1, 2001



Audrey Chang
Primary Examiner
Technology Center 2800